AMENDMENTS TO THE CLAIMS

1. (Previously Presented) A distributed redundant control signal distribution system, said control system comprising:

a first control signal source co-located with a first set of control signal controlled circuit elements;

at least one second control signal source co-located with a second set of control signal controlled circuit elements;

a first controller; and

at least one second controller; said first controller and second controller operable for substituting signals from said second control signal source for signals from said first control signal source if said signals from said first control signal source become unavailable to either said first or second circuit elements.

2. (Original) The system of claim 1 wherein said control signal sources are system clocks.

3. (Original) The system of claim 1 wherein said first and second sets of circuit elements are interconnected by at least two transmission paths and wherein said controlling signals travel over both of said transmission paths.

4. (Previously Presented) The system of claim 3 wherein said first controller and at least one second controller enable said controlling signals to control both sets of controlled circuit elements even when one of said transmission paths is inoperative.

5. (Previously Presented) The system of claim 1 wherein said first controller and at least one second controller comprise a first multiplexer and a second multiplexer for accepting signals on their inputs from said first and second control signal sources, said first and second multiplexers operable for selecting which one of said control signals controls said controlled circuit elements.

6. (Previously Presented) The system of claim 5 wherein said first and second multiplexers have a preset hierarchical control among their respective inputs.

7. (Previously Presented) The system of claim 5 wherein said first multiplexer is co-located with said first set of controlled circuit elements.

8. (Previously Presented) The system of claim 7 wherein said second multiplexer is co-located with said second set of controlled circuit elements.

9. (Previously Presented) The system of claim 1 further comprising at least a third set of control signal controlled circuit elements wherein signals from said first control signal source control said third set of controlled circuit elements, said third set of controlled circuit elements having co-located therewith a controller for substituting signals from said second control signal source for said signals from said first signal control source if said signals from said first signal control source become unavailable.

10. (Original) The system of claim 9 wherein said last-mentioned controller comprises a multiplexer for accepting on its input a redundant set of control signals, said multiplexer operable for selecting which one of said redundant set of control signals controls said third set of controlled circuit elements.

11. (Original) The system of claim 10 wherein said at least one controller comprises a second multiplexer co-located with said first set of controlled circuit elements for accepting on its input said first and second control signals, said second multiplexer operable for selecting which one of the control signals control said first set of controlled circuit elements; and

wherein said at least one controller further comprises a third multiplexer co-located with said second set of controlled circuit elements for accepting on its input said first and second control signals, said third multiplexer operable for selecting which one of said control signals controls said second set of controlled circuit elements.

12. (Previously Presented) A method for distributing control signals among a plurality of electronic boards, each electronic board having associated therewith control signal controlled circuitry, said method comprising;

accepting, on each of said plurality of electronic boards, control signals originating from a first and second one of said electronic boards; and

on each said first and second board hierarchically controlling said control signals such that either of said control signals originating from said first or from said second electronic boards are operative to control said controlled signal controlled circuitry on all of said electronic boards.

13. (Original) The method of claim 12 wherein said electronic boards are interconnected with redundant connections; and

wherein said hierarchically control signals are switched from a first to a second connection upon detection of a lack of a control signal on said first connection.

14. (Original) The method of claim 13 wherein said hierarchical control is operable for allowing said control signals originating from said first electronic board to dominate, followed by control signals originating from said second electronic board.

15. (Original) The method of claim 13 wherein on said second electronic board said hierarchy control allows signals originating on said first electronic board and provided to said second electronic board over a pair of transmission links to dominate over said control signals originating on said second electronic board.

16. (Original) A system for controlling clock signals for a plurality of electronic boards, said system comprising:

a clock source on at least two of said electronic boards;

at least one signal connection between all of said electronic boards, each said signal connection allowing clock signals to pass between said plurality of boards;

a controller on each of said boards, said controller operable for hierarchically selecting clock signals from at least one of said signal connections; and

wherein said signal controllers on said first and second electronic boards are further operable for hierarchically selecting one or the other of said clock sources.

17. (Original) The system of claim 16 wherein the hierarchy is such that said controllers only select the clock source from said second one of said boards when the clock source from said first one of said boards is not available.

18. (Original) The system of claim 17 wherein said controllers are multiplexers.

19. (Original) The system of claim 16 wherein said at least one signal connector is a plurality of independent transmission paths; and

wherein said controllers accept signals from each of said transmission paths for said hierarchical selection.

20. (Original) A method for protecting electronic circuits from dual clocking signal failures, said method comprising:

interconnecting said electronic circuits with dual independent clock signal transmission facilities;

providing to the input of a controller on each electronic circuit a clock signal generated local to said controller, the output of said controller supplying clock signals for circuitry local to said controller, said output further supplying clock signals as inputs to said dual independent transmission facilities;

providing to said input of said controller, clock signals from each of said signal transmission facilities; and

hierarchically selecting one of said inputs for presentation of the signals on said selected input to said output of said controller.

21. (Previously Presented) A distributed redundant control signal distribution system, said system comprising:

a first system node, comprising a control signal source, a controller, an input, an output and a first set of circuit elements requiring a control signal; and

a second system node, comprising a control signal source, a controller, an input, an output and a second set of circuit elements requiring a control signal;

wherein the output of the first node is coupled to the input of the second node;

wherein the output of the second node is coupled to the input of the first node; and

wherein the controller of the first node operates in tandem with the controller of the second node to alternatively select between the control signal sources of the first and second node to supply a control signal to the first set and second set of circuit elements.

22. (Previously Presented) The system of claim 21 wherein said control signal sources are system clocks.

23. (Previously Presented) The system of claim 21 further comprising:

a third system node, comprising a third controller, a third input and a third output;

wherein the second node is coupled to the first node through the third node;

wherein the second output is coupled to the third input;

wherein the third output is coupled to the first input; and

wherein the first, second and third controllers operate in tandem to select among the first and second control signal sources for supplying to the first set and second set of circuit elements.

24. (Previously Presented) The system of claim 23 wherein the third node further comprises:

a third set of circuit elements requiring a control signal;

wherein the third set of circuit elements requiring a control signal receives the same signal as both the first and second sets of circuit elements requiring a control signal.

25. (Previously Presented) The system of claim 23 wherein the third node further comprises:

a third control signal source;

wherein the first, second and third controllers operate in tandem to select among the first, second and third control signal sources for supplying to the sets of circuit elements requiring a control signal.

26. (Previously Presented) The system of claim 23 further comprising:

a fourth system node, comprising a fourth controller, a fourth input and a fourth output;

wherein the first node is coupled to the third node through the fourth node;

wherein the third output is coupled to the fourth input;

wherein the fourth output is coupled to the input of the first node; and

wherein the first, second, third and fourth controllers operate in tandem to select among the first and second control signal sources for supplying to the sets of circuit elements requiring a control signal.

27. (Previously Presented) The system of claim 21 wherein the first controller and second controller each comprises a multiplexer for accepting multiple signals at the inputs of the multiplexer and selecting which one of the signals is passed to the output of the multiplexer.

28. (Previously Presented) The system of claim 27 wherein the multiplexer has a preset hierarchical control among its respective inputs.